

REMARKS

This is in Response to the Office Action mailed October 22, 2007. Reconsideration of the claims is respectfully requested. New claim 10 has been added, and thus, claims 1-10 are pending and under consideration. No new matter has been added.

Interview Request

The Applicants' representative would like to request a telephonic interview with the Examiner to discuss the present application. The Examiner is requested to telephone Ameet I. Patel, Reg. No. L0353, at the number below to arrange an Interview prior to preparation of another Office Action.

Rejection under 35 U.S.C. § 103(a)

Claims 1-3

On page 3, item 2, the Office Action rejected claims 1-3 under 35 U.S.C. § 103(a) as being unpatentable over Mack et al. (U.S. 6,125,197) in view of O'Meara (U.S. 3,544,771). This rejection is respectfully traversed.

First, on page 2, fourth paragraph, the Office Action asserted that Mack et al. discloses the "first image pickup step... second image pickup step... and an extracting step..." as recited by claim 1. This assertion is respectfully traversed.

Mack et al. merely describes a method of extracting *three-dimensional* data from a target source. In order to extract the three-dimensional data, Mack et al. describes a process for extracting a shape, and simultaneously extracting a texture of an object. More specifically, Mack et al. column 5, lines 24-30, (to which the Office Action refers) describes:

In another embodiment, light source 16 may emit light in the infra-red region (generally considered to be light with wavelength longer than 780 nm). In this instance, the image sensor 14, 15 of the imaging device 12, 13 may be designed to enable simultaneous capture of the **visible light textural data and infra-red structured light data**.

As shown above, Mack et al. describes that visible light is used to capture textural data, and infra-red light is used to capture structure light data. Neither of these capture methods (textural or structured), however, describes capturing an **image** of an object. Compare, for example, the "3-D data being extracted from a target object" (column 3, lines 15-1), illustrated in Figure 3c of Mack et al., which does not appear to have captured the target image, with the "extract [of] the image portion 101-2 of the object 1 as shown in Figure 3B" (application, page 8, lines 7-8).

In view of the above described differences, Applicants submit that Mack et al. fails to disclose "a first image pickup... of an object positioned in front of a background using wavelengths in a visible light region; [and] a second image pickup... of the object positioned in front of the background using wavelengths in an infrared region" as recited on lines 2-5 of claim 1.

In addition, the second paragraph on page 4 of the Office Action in reference to claim 2, stated that "the first camera uses visible light which translate (sic) to detecting it (sic) RGB values" and "the second camera uses infrared light which depends luminance lighting (sic)." However, no support for such an assertion was provided. Moreover, "luminance" is not limited to infrared light because luminance is also a characteristic of visible light. Accordingly, this conclusory statement does not meet the claim limitation "extracting... the first image... depending on color, and... the second image... depending on luminance" as recited by claim 2.

Second, on page 4, lines 8-13, the Office Action stated that it is obvious to an artisan to include a **surface of the background is formed by a dye or any form of dye** is because the energy in the form of electromagnetic radiation such as light is direct to the background dye an object will produce distinguishable series of pulse signal showing the location of object and the background area, so one would be able to easily locate the object (sic).

This assertion is respectfully traversed.

An organic dye, depending on the kind (or type), can be one of various colors in the visible light region, whereby it is possible to easily separate the object and the background by selecting a suitable organic dye for the background in a contrasting color to that of the object. In addition, since an organic dye can be selected which has a high absorption in the infrared region, it becomes possible to easily separate the object and the background depending on the brightness (or luminance). Hence, an important feature of the present invention is the use of such an organic dye for the background, since it enables easy separation of the object and the background in both the visible and the infrared light regions.

O'Meara was cited as suggesting the use of a dye to select the background color of an information bearing medium. O'Meara, for example, in column 3, lines 22-25, merely describes "the shading or color of the areas may be complementary... such arrangement would be to process the medium with a dye... such that the background area is gray... and the character area 18 is black." In other words, O'Meara merely describes selecting a dye in a color that is complementary in the visible light spectrum but does not contemplate nor describe the ability to select an organic dye that enables easy separation in the infrared light region. It should also be noted that even an ink which appears to be gray in the visible light region may appear invisible in

the infrared region. Accordingly, O'Meara fails to describe or suggest forming at least the surface of the background using an organic dye, to enable extraction of the object based on the images picked up using wavelengths in the infrared region.

Therefore, Mack et al. and O'Meara, individually or combined, fail to describe "a second image pickup step to pick up an image of the object positioned in front of the background using wavelengths in an infrared region... wherein at least a surface of the background is formed by an organic dye" as recited by claim 1. Applicants submit that claim 1 patentably distinguishes over the cited art for at least the reasons discussed above.

Dependent claims 2 and 3 inherit the patentable recitations of their base claim, and therefore, patentably distinguish over the cited art. In addition, claim 2, recites "extracting... the first image... depending on color, and... the second image... depending on luminance." As described above, the cited art fails to describe such a feature, and accordingly, claim 2 patentably distinguishes over the cited art on this additional basis.

Claim 4

In item 3 on page 5 of the Office Action, claim 4 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mack et al. ('197) in view of O'Meara ('771) as applied to claim 1 further in view of Gaynor (US Patent No. 3,434,835). This rejection is respectfully traversed.

Applicants submit that Gaynor fails to cure the deficiencies of Mack et al. and O'Meara described above. Accordingly, claim 4, which inherits the patentable recitation of its base claim, is therefore patentable over the cited art for at least the reasons discussed above.

Claims 5-8

In item 4 on page 6 of the Office Action, claims 5-8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Mack et al. ('197) in view of Okazaki (U.S. 6,873,713) and O'Meara ('771). This rejection is respectfully traversed.

Independent claim 5 recites:

a first image pickup section to pick up an image of an object positioned in front of a background using wavelengths in a visible light region;
 a second image pickup section to pick up an image of the object positioned in front of the background using wavelengths in an infrared region...
 wherein at least a surface of the background is formed by an organic dye

As describe above, Mack et al. and O'Meara fails to describe such features. Applicants submit that Okazaki fails to cure the deficiencies of Mack et al. and O'Meara described above, and therefore, claim 5 patentably distinguishes over the cited art.

Dependent claims 6-8 inherit the patentable recitation of their base claim, and therefore, are patentable over the cited art for at least the reasons discussed above.

Claim 9

In item 5 on page 7 of the Office Action, claim 9 was rejected under 35 U.S.C. 103(a) as being unpatentable over Mack et al. ('197) Okazaki ('713) and O'Meara ('771) as applied to claim 5 in view of Gaynor ('835). This rejection is respectfully traversed.

As discussed above, Okazaki and Gaynor, individually or combined, do not cure the deficiencies of Mack et al. and O'Meara described above. Accordingly, claim 9, which inherits the patentable recitation of its base claim, is therefore patentable over the cited art for at least the reasons discussed above.

In view of the above, Applicants respectfully request the rejection be withdrawn.

New Claim

Applicants submit that new claim 10 patentably distinguishes over the cited art. As described above, the cited art merely describes that visible light is used to capture textural data, and infra-red light is used to capture structure light data. Accordingly, the cited art fails to describe:

extracting an object positioned in front of a background, comprising:
capturing a first **image** of the object using wavelengths in a visible light region
and capturing a second **image** of the object using wavelengths in an infrared region

(emphasis added) as recited in lines 1-4 of claim 10.

In addition, as described above, O'Meara merely describes having a background color that is complementary to the foreground color. It does not describe:

the organic dye having a color **distinguishable in the visible light region** from a color of the object, **and** having a **luminance distinguishable in the infrared region** from a luminance of the object

(emphasis added) as recited on lines 5-7 of claim 10.

Accordingly, Applicants submit that claim 10 patentably distinguishes over the cited art.

Conclusion

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone Ameet I. Patel Reg. No. L0353 at the number below to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: 3/24/08

By: Richard A. Gollhofer
Richard A. Gollhofer
Registration No. 31,106

1201 New York Avenue, N.W., 7th Floor
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501